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Top quark mass measurement in the lepton+jets and dilepton channels at CDF using a template method JIAN TANG, University of Chicago, CDF COLLABORATION — We present a measurement of the top quark mass using the CDF detector at the Fermilab Tevatron in the lepton + jets and two leptons final states using a template method. In the lepton + jets channel, we introduce a 3-dimensional template using non-parametric kernel density estimation. Two of the observables have been used in a previous analysis which are the reconstructed top quark mass in each event obtained by minimizing a χ^2 for the overconstrained kinematic system and dijet mass of the hadronically decaying W boson in the same event sample, that provides an in situ improvement in the determination of the jet energy scale. The 3rd observable is the reconstructed top quark mass with the 2nd best χ^2 in the kinematic fit. In the dilepton channel, we use the reconstructed top quark mass determined using the neutrino weighting method and mT2, a variable related with the transverse mass in events with two missing particles. In order to increase the lepton acceptance in the lepton+jet events, a new lepton category was included from data collected by a trigger that requires the presence of missing energy and two jets. By increasing the statistics and the development of the 3-dimensional template method, we have significantly improved the final result.

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